ABSTRACT

Disclosed is the discovery that the transcription elongation factor termed P-TEFb has a central role in transcription elongation control. P-TEFb is herein shown to phosphorylate RNA polymerase II and to control the transition from abortive into productive elongation mode. P-TEFb has also been discovered to interact with the HIV transcriptional transactivating protein, Tat, showing that P-TEFb is the cellular factor necessary for HIV Tat to effect productive viral mRNA elongation. The invention provides genes encoding P-TEFb subunits, including human genes, and related biological components, and also provides assay methods connected with the control of transcription elongation. Particularly useful assays are those concerning the identification of substances that inhibit viral replication at the transcription elongation stage by inhibiting the binding or functional interaction of viral proteins to P-TEFb.